Construction Spending, Labor and Materials Outlook

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Dallas, November 7, 2017
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Chief Economist, AGC of America
Construction spending & employment, 2006-2017

**Total spending, Feb. ‘06 (peak)-Sep. ‘17**
- Trillion $, seasonally adjusted annual rate

- **Total spending**
  - $1.22 trillion (1% above 2006 peak)

- **Private**
  - $0.50 trillion

- **Residential**
  - $0.25 trillion

- **Public**
  - $0.75 trillion

- **Nonresidential**
  - $0.75 trillion (5% below peak)

- **Sep. 2016-Sep. 2017: total 2.0%**
  - Private res. 10%, private nonres. -4%, public -2%

**Total employment, Apr. ‘06 (peak)-Sep. ‘17**
- Millions, seasonally adjusted

- **Total employment**
  - 7.7 million

- **Private**
  - 4.5 million

- **Residential**
  - 2.0 million (11% below peak)

- **Nonresidential**
  - 2.7 million (5% below peak)

- **Sep. 2016-Sep. 2017: total 2.7%**
  - Residential 3.1%, nonresidential 2.5%

Source: spending--U.S. Census Bureau; employment--Bureau of Labor Statistics
Construction spending & employment, 2015-2017

Source: spending--U.S. Census Bureau; employment--Bureau of Labor Statistics
Possible storm/flood impacts on construction

• Immediate demand for plywood, wallboard, laborers, trucks
• Increased demand for new single- and multifamily housing; reconstruction of commercial, public buildings, infrastructure
• But most rebuilding will take years to get funding, design, regulatory approvals
• Meanwhile, businesses and individuals who would have built cancel or defer projects that they can’t afford/don’t need; public $ is reallocated
• Net: selectively higher materials, labor costs; little change in spending

Source: Author
# Nonresidential segments: year-to-date change, 2017-18 forecast

<table>
<thead>
<tr>
<th>Nonresidential total (public+private)</th>
<th>Jan.-Sept. '17 vs. '16</th>
<th>Full-year 2017 forecast</th>
<th>2018 forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (incl. oil &amp; gas field structures, pipelines)</td>
<td>-5</td>
<td>-3 to -5</td>
<td>positive</td>
</tr>
<tr>
<td>Highway and street</td>
<td>-4</td>
<td>-1 to -3</td>
<td>small pos.</td>
</tr>
<tr>
<td>Educational</td>
<td>1</td>
<td>1 to 3</td>
<td>positive</td>
</tr>
<tr>
<td>Commercial (retail, warehouse, farm)</td>
<td>15</td>
<td>10 to 12</td>
<td>less pos.</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-13</td>
<td>-10 to -12</td>
<td>flat</td>
</tr>
<tr>
<td>Office</td>
<td>7</td>
<td>4 to 6</td>
<td>less pos.</td>
</tr>
<tr>
<td>Transportation</td>
<td>0</td>
<td>0 to 2</td>
<td>small pos.</td>
</tr>
<tr>
<td>Health care</td>
<td>2</td>
<td>2 to 4</td>
<td>small pos.</td>
</tr>
<tr>
<td>Lodging</td>
<td>7</td>
<td>5 to 7</td>
<td>negative</td>
</tr>
<tr>
<td>Sewage &amp; waste disposal</td>
<td>-18</td>
<td>-15 to -18</td>
<td></td>
</tr>
<tr>
<td>Other--amusement; communication; religious; public safety; conservation; water: 13% of total</td>
<td>0</td>
<td>-1 to 1</td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau construction spending report; Author’s forecast
Construction spending: industrial, heavy
annual total, 2008-14; monthly (seasonally adjusted annual rate), 1/15-9/17; billion $

**Power** (91% private in 2016)

- Separ ’16-Sep ’17 change: -9% (oil & gas 5%; electric -13%)

**Manufacturing** (99.4% private in 2016)

- Sep ’16-Sep ’17 change: -20% (chemical -15%; other -25%)

**Amusement & recreation** (54% private in 2016)

- Sep ’16-Sep ’17 change: 8% (private 10%; public 6%)

**Communication** (99.3% private in 2016)

- Sep ’16-Sep ’17 change: 6%

Source: U.S. Census Bureau construction spending report
Key points: power & energy, mfg, amusement & recreation

• Solar, wind power are growing again; expect more gas-fired plants, natural gas pipelines into ‘18

• Manufacturing construction recovery in ‘18 depends on policy impacts, especially trade and tax

• Amusement & recreation spending is very “lumpy”—a few big stadiums at irregular intervals; but funding for local, state, federal parks keeps eroding

Source: Author
Construction spending: public works
annual total, 2008-14; monthly (seasonally adjusted annual rate), 1/15-9/17; billion $

**Highways** (99.7% public in 2016)
- Sep. '16-Sep. '17 change: -7%

**Sewage/waste** (98% public in 2016)
- Sep. ’16-Sep. ’17 change: -11%

**Transportation facilities** (69% public in 2016)
- Sep. '16-Sep. '17 change: 6% (private 22%; public -1%)

**Water supply** (98% public in 2016)
- Sep. ’16-Sep. ’17 change: -9%

Source: U.S. Census Bureau construction spending report
Key points: roads, transportation, sewer/water

• State highway funding and P3s gradually increasing but federal funding likely to be flat through 2018
• Many new and ongoing airport projects but no net increase likely in public funding for port, passenger rail or transit construction
• Huge declines in water & sewer spending in 2017: hard to explain and unlikely to be repeated

Source: Author
Construction spending: education, health care
annual total, 2008-14; monthly (seasonally adjusted annual rate), 1/15-9/17; billion $

**Education:** state/local K-12, S/L higher; private

**Health care:** (private hospital, S/L hospital, other)

Source: U.S. Census Bureau construction spending report
Key points: education & health care

- Rising house & commercial property values are supporting school district tax receipts & bond issues for preK-12 projects.
- Higher-ed enrollment declined 21% from 2011 to 2016, so colleges need fewer dorms & classrooms; apts. (multifamily) replacing dorms (educational construction).
- Rising stock prices help private school & college capital campaigns.
- Health care spending is shifting from hospitals to special care facilities (standalone urgent care, surgery, rehab, hospices).

Source: Author
Construction spending: developer-financed
annual total, 2008-14; monthly (seasonally adjusted annual rate), 1/15-9/17; billion $

Retail (private)
Sep. ‘16-Sep. ’17 change: 1%

Office (88% private in 2016)
Sep. ‘16-Sep. ’17 change: -6% (private -7%; public 4%)

Warehouse (private)
Sep. ‘16-Sep. ’17 change: 39%

Lodging (private)
Sep. ‘16-Sep. ’17 change: 1%

Source: U.S. Census Bureau construction spending report
Key points: retail, warehouse, office, hotel, data centers

• Retail now tied to mixed-use buildings & renovations, not standalone stores or shopping centers; massive store closings imply downturn in ‘18
• Warehouse growth is still benefiting from e-commerce; more local than huge regional distribution centers likely in future; self-storage is booming
• Office growth is slowing; employment still rising but space per worker is shrinking; more urban & renovation work than suburban office parks
• Hotel: more competition from Airbnb; fewer foreign visitors?
• Data centers remain a strong niche but no data available on how strong

Source: Author
Private residential spending: steady single-family growth, slower multifamily annual total, 2006-14; monthly (seasonally adjusted annual rate), 1/15-9/17; billion $
Private residential spending forecast--2017: 7-9%; 2018: 6-9%

- **SF**: 8-10% in 2017 & 2018; ongoing job gains add to demand; but student debt and other credit impairments, limited supply of lots and labor will limit growth
- **MF**: 3-5% in 2017; near 0 in 2018
  - occupancy rates, rents have leveled off; starts, permits are down from 2016
  - millennials are staying longer in cities and denser suburbs where MF construction is bigger share of market than in outer suburbs
  - nearly all MF construction is rental, not condo; more high-rises
- **Improvements**: 15-20% in 2017 & 2018; unpredictable because Census lacks reliable data source; post-storm reconstruction may boost totals

Source: Author
Population change by state, Aug. 2015-Aug. 2016 (U.S.: 0.70%)

Source: U.S. Census Bureau
State construction employment change (U.S.: 2.7%)
9/16 to 9/17: 35 states + DC up, 1 unchanged, 14 down

Shading based on unrounded numbers

Source: BLS state and regional employment report
Hardest positions to fill

% of respondents who are having trouble filling

<table>
<thead>
<tr>
<th>Position</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>All hourly craft positions</td>
<td>70%</td>
</tr>
<tr>
<td>Carpenters</td>
<td>58%</td>
</tr>
<tr>
<td>Electricians, bricklayers</td>
<td>53%</td>
</tr>
<tr>
<td>Concrete workers</td>
<td>51%</td>
</tr>
<tr>
<td>Plumbers</td>
<td>50%</td>
</tr>
<tr>
<td>Project mgrs/supervisors</td>
<td>48%</td>
</tr>
<tr>
<td>Estimators</td>
<td>32%</td>
</tr>
<tr>
<td>Engineers</td>
<td>28%</td>
</tr>
</tbody>
</table>

Source: AGC Member Survey, August 2016
How contractors are coping with worker shortages

- Raising base pay: 50%
- Providing incentives/bonuses: 24%
- Increasing contributions/benefits: 20%
- Overtime hours: 47%
- In-house training: 46%
- Subcontractors: 39%
- Engage w/ career-building prog.: 27%
- Craft labor suppliers: 22%
- Labor-saving equip., tools, mach.: 22%
- Unions: 17%
- Lean construction: 15%
- Offsite prefabrication: 11%
- Building information modeling: 7%
Construction workforce indicators (not seasonally adjusted)

- **Construction hires, Aug. 2001-Aug. 2017**
- **Job openings, Aug. 2001-Aug. 2017**
- **Unemployment, Aug. 2001-Aug. 2017**
- **Production and nonsupervisory employees: avg. hourly earnings, 12-mo. % change, 8/01-8/17**

Source: Bureau of Labor Statistics
Producer price indexes for key inputs, 1/15-9/17 (Jan. 2015=100)

**Diesel fuel**
- Latest 1-mo. change: 7.5%, 12-mo.: 28%

**Steel mill products**
- Latest 1-mo. change: 0.1%, 12-mo.: 8%

**Copper & brass mill shapes**
- Latest 1-mo. change: 6.2%, 12-mo.: 28%

**Aluminum mill shapes**
- Latest 1-mo. change: 2.5%, 12-mo.: 13%

Source: Bureau of Labor Statistics
Producer price indexes for key inputs, 1/15-9/17 (Jan. 2015=100)

**Gypsum products**
- Latest 1-mo. change: 0.1%, 12-mo.: 8%

**Paving mixtures**
- Latest 1-mo. change: -0.9%, 12-mo.: 0%

**Flat glass**
- Latest 1-mo. change: 0.1%, 12-mo.: 0%

**Concrete products**
- Latest 1-mo. change: 0.2%, 12-mo.: 3%

Source: Bureau of Labor Statistics
Change in costs for buildings, material inputs and wages

Latest 12-mo. change: PPI for nonresidential building: 3.5%; PPI for inputs to construction, goods: 4.5%; average hourly earnings for all construction employees: 3.4%

Source: Bureau of Labor Statistics
# 2016 summary, 2017-18 forecast

<table>
<thead>
<tr>
<th></th>
<th>2016 actual</th>
<th>2017 forecast</th>
<th>2018 forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total spending</strong></td>
<td>6%</td>
<td>3-5%</td>
<td>2-7%</td>
</tr>
<tr>
<td><strong>Private – residential</strong></td>
<td>11%</td>
<td>7-9%</td>
<td>6-9%</td>
</tr>
<tr>
<td><strong>– nonresidential</strong></td>
<td>8%</td>
<td>2-4%</td>
<td>1-5%</td>
</tr>
<tr>
<td><strong>Public</strong></td>
<td>-1%</td>
<td>-4 to -6%</td>
<td>-3 to 3%</td>
</tr>
<tr>
<td><strong>Goods &amp; services inputs PPI</strong></td>
<td>2%</td>
<td>2.5-3.5%</td>
<td>3-4%</td>
</tr>
<tr>
<td><strong>Employment cost index</strong></td>
<td>2.2%</td>
<td>2.5-3%</td>
<td>3-4%</td>
</tr>
</tbody>
</table>

Source: actuals: Census, BLS; forecasts: Author’s estimates
AGC economic resources
(email simonsonk@agc.org)

• **The Data DIGest**: weekly 1-page email (subscribe at [http://store.agc.org](http://store.agc.org))

• monthly press releases: spending; PPI; national, state, metro employment

• yearly employment & outlook surveys, state and metro area data, fact sheets: [www.agc.org/learn/construction-data](http://www.agc.org/learn/construction-data)